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ARE WE ‘CONSCIOUS AUTOMATA’?

THE ‘new psychology’ has raised in an acute form the by no means new question of the relation of mind and body. The answer which some of the first contemporary psychologists give to this question is also by no means new; but, like the question itself, it is an ‘old friend with a new face.’ The automaton or parallelistic theory is a familiar enough philosophical doctrine, placed in a new scientific setting. Causal inter-action or reciprocal ‘influence’ of mind and body is denied on the ground that this would contradict the law of the conservation of energy. The influence of mind upon body would mean the creation of energy, as the influence of body upon mind would mean its annihilation; but energy is a constant sum, and can only be transferred and transformed, neither increased nor diminished. Between mind and body, therefore, there can be no ‘causal efficacy’; so far as causation is concerned, the mental series and the physical series of events are independent. The connection between the two series is that of mere parallelism or correspondence; the terms in the one series are indicative or symbolical of their correlates in the other series, but the former are neither causes nor effects of the latter. Each series is self-contained; and in particular the body is an automaton, a self-acting machine, which needs not, and brooks not, any interference with its processes by the mind. All physical action is strictly reaction to physical stimulus; the accompanying mental events are not among the conditions or antecedents of the physical consequents, they are mere concomitants or epi-phenomena, outside the causal series altogether. In the words of the late Professor Clifford: “All the evidence that we have goes to show that the physical world gets along entirely by itself. . . . The train of physical facts between the stimulus sent into the eye, or to any one of our senses, and the exertion which follows it; and the train of physical facts which goes on in the brain, even when there is no stimulus and no exertion, — these are perfectly complete physical trains, and every step is fully accounted for by mechanical conditions. . . . The two things are on utterly different platforms — the physical facts go along by themselves, and the mental facts go along by themselves. There is a parallelism between them, but there is no interference of the one with the other. Again, if anybody says that the will influences matter, the statement is not untrue, but it is nonsense. Such an assertion belongs to the crude materialism of the savage. The only thing which influences matter is the position of surrounding matter or the motion of surrounding matter. . . . When, therefore, we ask : 'What is the physical link between the ingoing message from chilled skin and the outgoing message which moves the leg? and the answer is, 'A man's will,' we have as much right to be amused as if we had asked our friend with the picture what pigment was used in painting the cannon in the foreground, and received the answer, 'Wrought iron.' It will be found excellent practice in the mental operations required by this doctrine to imagine a train the fore part of which is an engine and three carriages linked with iron couplings, — and the hind part three other carriages linked with iron couplings ; the bond between the two parts being made up out of the sentiments of amity subsisting between the stoker and the guard." In the same strain Professor Huxley, speaking of the lower animals, says : "Their volition, if they have any, is an emotion *indicative* of physical changes, not a *cause* of such changes. . . . It seems to me that in men, as in brutes, there is no proof that any state of consciousness is the cause of change in the matter of the organism. If these positions are well based, it follows that our mental conditions are simply the symbols in consciousness of the changes which take place automatically in the organism, and that, to take an extreme illustration, the feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act. We are conscious automata."[1]

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[1] Quoted by James, *Principles of Psychology*, I, 131–2.

The neurosis, being self-contained and self-explaining, neither is explained by, nor explains, the psychosis. The latter is an epi-phenomenon, something over and above, and disparate; and since the neurosis is a kinesis, or movement of energy, the psychosis may be called a "meta-kinesis." It follows that we can only have a *quasi*-'physiological psychology' or 'psycho-physics.' The only 'explanation,' in the strict sense, is within the physiological sphere, for here alone can we predicate causal connection. All that can be investigated or discovered are the details of the parallelism; we can point out what event in the physical series is the 'sign and symbol' of what event in the psychical, we can group these symbols, and predicate a corresponding grouping of their fellows in the other series. There is no explanation, therefore, of the presence of consciousness; it remains an 'epi,' for which there is no room in the universe of 'phenomena,' or caused events; it remains for science an uncaused event. Incapable of being causally related to the 'phenomena,' since it cannot be reduced to the same denominator, consciousness is simply accepted, in its being and in the manner of its being, as an inexplicable but undeniable fact. Since the only causes and effects we know are physical, since causation *is* transformation of energy, it follows that the psychical series must not be regarded as causal, either in itself or in its relation to the physical series. But the stress of the conclusion is laid upon the denial to mind of causal efficacy over matter. Consciousness is an epi-phenomenon, in the sense that its occupation as director of the physical organism is taken away from it. Everything is done by the machine itself, and consciousness is reduced to the function of a mere 'spectator.' The mind is only 'idea corporis,' or 'idea ideae corporis'; the sole business of consciousness, or rather of conscious states, is passively to watch what takes place in the physical world; the idea is simply the mental reflection of certain physical phenomena, their 'epi.' Activity, whether between the ideas themselves, or between ideas and their physical counterparts, is inconceivable, and therefore impossible.

The first consideration that occurs to one in the discussion of this view of the relation of mind and body, is that the law of conservation of energy, being a purely physical formula, must, by the very nature of the case, be inadequate to the interpretation of the relation in question. It is admitted that the psychical is disparate from the physical: it is this disparateness that occasions the whole difficulty for the principle of the conservation of energy. Only where there is energy does that principle apply; but the connection of mind with body, if there be such a connection, is not a mode of the manifestation of energy. So far as there is *no* connection, or so far as we can ignore any connection, the formula is sufficient; if there *is* connection, and if we take the connection into account, the formula must be insufficient. This does not mean that the physical formula must be *contradicted.* So long as we abstract the physical from the psychical, and consider the former as a sphere complete in itself, the formula may hold true. Even when we extend our view so as to include the psychical, and revise our conception of the physical sphere in the light of its relation to the psychical, the formula may still hold; only now it will be seen not to be the final formula. To make it the final formula, to insist upon interpreting *all* phenomena in its terms, to say that what cannot be deduced from this highest principle of physical science, has no connection with the physical universe, and is a mere outside, uninfluential *epi*-phenomenon, is to deny the disparateness, which has just been predicated of mind and body, and to dictate to the former the limits of the latter. It is essentially the same procedure as that of Mr. Spencer, who, after professing strict impartiality between the rival hypotheses of materialism and idealism, proceeds to deduce the entire life of the mind from the physical principle of the 'persistence of force.' We must not thus play fast and loose with principles and distinctions. Either there is no essential difference between the mental and the physical, and the law of the conservation of energy covers all the phenomena in both spheres, as well as the connection between the two spheres; or there is such an essential difference, and the law in question ceases to be the ultimate law, since it covers neither the mental sphere nor the connection between this sphere and the physical. To deny such connection because the physical formula cannot accommodate and interpret it, is arbitrarily to arrest the progress of scientific thought, and implicitly to deny the disparateness of mind and matter.

But the law of the conservation of energy fails us even before we reach consciousness. When we pass from the physical and mechanical to the biological sphere, we encounter phenomena which that formula cannot accommodate. The organism — plant or animal — is no mere 'automaton' or machine. The idiosyncrasy of an organism is that it is a 'self-acting machine,' but *machines* are not self-acting. The organism does not simply react in response to the momentary stimulation; the phenomenon of 'stimulation' itself means that the appeal is made to the organism as a whole, and that *as a whole* it reacts. 'Environment,' again, is peculiar to organism; the environment is constituted by the selective adaptation of a living being. That is to say, the mechanics of life do not exhaust the phenomena of the case; protoplasm is not *simply* matter in motion. There is a distinction between the movements of inorganic matter and organic movements, which constitutes the limitation of physics to the former, or to the mechanical *aspect* of the latter. The coördinating and controlling principle in the vital process is not mechanical. The essence of organism, as Professor Burdon Sanderson pointed out in his presidential address before the British Association last September, is 'the idea of adaptation,' or 'a working together of parts for the good of the whole.' This principle governs and constitutes every vital reaction, and what we mean by the 'specific energies' of the organism is simply 'the way in which adaptation manifests itself.' The distinction is as old as Aristotle, who differentiates *ἥ φύσις ἥ ἒξ ἀνάγκης ποιοῦσα* from *ἥ φύσις ἥ τοῦ ἕνεκα ποιοῦσα.* In the words of Professor Sanderson: "the 'specific energy' of a part or organ . . . is simply the special action which it *normally* performs, its norma or rule being in each instance the *interest of the organism* as a whole of which it forms part, and the exciting cause some influence outside of the excited structure, technically called a stimulus. It thus stands for a characteristic of living structures which seems to be universal. . . . Nor can it well be doubted that, as every living cell or tissue is called upon to act in the interest of the whole, the organism must be capable of influencing every part so as to regulate its action. . . . In general there is no difficulty in determining both the nature of the central influence exercised and the relation between it and the normal function." In the opinion of this representative biologist, "there is one principle — that of adaptation — which separates biology from the exact sciences, and in the vast field of biological inquiry the end we have is not merely, as in natural philosophy, to investigate the relation between the phenomenon and the antecedent and concomitant conditions on which it depends, but to possess this knowledge in constant reference to the interest of the organism. . . . *Organism* is a fact which encounters the biologist at every step in his investigations." It follows that "physiology can never become a mere branch of applied physics or chemistry."[1] Here, as in the case of the psychical factor, the introduction of the new element need not negate the operations of the old. The vital process is not necessarily opposed to the mechanical; it *is* in a sense a mechanical process, and may be interpreted as such. Only, the process of life is not a *merely* mechanical process, and the final interpretation of it must be beyond the scope of physics and its formula of the conservation of energy. Yet it is not proposed to call *life* an 'epi-phenomenon.'

The advocates of Automatism propose, we have seen, to limit causation to the physical sphere. The reality and inviolability of the causal sequence they identify with the operation of the principle of the conservation of energy. This may, or may not, be a true *ideal* of scientific explanation, but, at any rate, it is nothing more than an ideal. All causation has not yet been reduced to the one form of it, — the physical or mechanical. We have just seen that there is organic causation as well. Nor have we any right to deny causation in the mental sphere. On the contrary, there are good grounds for the position that our notion of cause is *derived* from the mental world, and extended by analogy to the physical; that the original and radical significance of causation is volition or spiritual activity. But, even taking 'cause' in its strict scientific sense of 'uniform sequence,' and emptying it of all dynamical content, have we not such 'constant conjunction' in the mental as well as in the physical series of events? It is said that the mental series is discontinuous; but it is sufficiently continuous to supply an ample field for the application of the scientific notion of causal connection, and the hypothesis of 'sub-conscious' mental phenomena would make it even more continuous than it would otherwise appear to be. Reason has not been shown for the denial that the mental series is causal, — causal within itself, as well as in its relation to the physical series.

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[1] *Nature*, September 14, 1893.

Nor is the exclusion of consciousness from the sphere of causal phenomena consistent with the general procedure of scientific thought; it is not scientific to admit an '*epi*-phenomenon'; 'parallelism' can hardly be called a scientific point of view. Such a dualism is baffling to science, which can admit no extra-causal sphere. Nor is the scientific character of the conception saved by reducing the empirical dualism to a metaphysical monism, by interpreting mind and matter as two sides of the same thing, like the concave and convex sides of a curve. This is no real unity, or at any rate it is a unity for ever beyond the reach of science, with its causal point of view. Such a *merely* metaphysical or transcendental unity cannot long satisfy either science or metaphysics. Science must pursue its effort to interpret the universe, and metaphysics must continue to correlate its interpretation with that of science. The hypothesis of the causal independence of the body may be a convenient resting-place for psychology in its progress towards the 'physiological' form; the investigation of how much the body can do without the mind, will help to determine the true relation of mind to body. But I cannot believe that 'physiological psychology,' as the science which attempts to correlate the mental and the physical series, will long be content to regard consciousness as an 'epi-phenomenon,' a mere spectator with no part to play in the world-drama.

In the meantime, our inability to give a scientific explanation of the influence of mind upon matter and of matter upon mind, does not entitle us to deny the fact of such influence, or to explain it away. To say that this causal influence must contradict the law of the conservation of energy, is unwarranted. All that we can say is that we cannot yet reconcile it with that law, cannot yet trace the physical principle in the more complex, as we have already traced it in the simpler, phenomenon. It is a case in which we may well supplement the maxim of 'parsimony' of causes by that of the 'plurality of causes.' The operation of a principle may be so modified by its combination with other principles as to be with great difficulty, if at all, recognizable. Mental control must be more difficult to correlate with physiological, than physiological with physical. Yet psycho-physical need not, any more than physiological, abrogate physical causation. On the contrary, we must assume that the more complex causal system incorporates the lower in itself.

Physics, as a science, is so far from disallowing the possibility of a causation which goes beyond the scope of the law of the conservation of energy that it finds a case of such causation within the physical sphere itself, a case which offers a suggestive hint as to the possible *modus operandi* of biological and psychological causation in a physical universe. Where "no work is done," or no energy expended, there can be no question of its conservation. Now, "although expenditure of energy is needed to increase the speed of matter, none is needed to alter its direction." "Determining the direction of motion involves no expenditure of energy, or performance of work. Energy may be guided along desired channels without altering its quantity in the least, just as can matter. The rails which guide a train do not propel it, nor do they necessarily retard it ; they have no essential effect upon its energy except a guiding effect. A force at right angles to motion does no work." The author just quoted, Professor Lodge, goes on to apply this principle to the case of physiological and psychological action. "It is a function of living organisms thus to direct the path of transference of energy, but they add nothing to its quantity. There is no more energy in a live animal than in a dead one. . . . There is activity of transference and transformation in the one case, and stagnation in the other ; but the law of conservation of energy has nothing whatever to say against a live animal, or a mind, controlling the motion of molecules ; although it would have everything to say against motion being produced *de novo* by an act of will. Life is not energy, it is a determiner of the paths of energy. That is its natural and principal function ; it is a director, not a worker. Food and fuel work ; life directs. . . . The distinction between generating motion and directing motion is evidently one useful to remember." [1] Though "life has not yet been included in the domain of physics," "yet the disturbing action of live animals will have to be formulated and attended to some day, even in physics ; for though they generate no energy nor affect its amount in the slightest degree, they certainly control and direct it in channels it would not otherwise have taken. The question is, How do they manage this ? And one answer that may be given is, By exerting directive or guiding forces on matter." [2]

If the automaton-theory is untenable from the scientific point of view, from which I have been hitherto discussing it, still graver objections must be made to it from the metaphysical and ethical standpoints. Metaphysically, we must recognize in the mental life of man a unity far more real and intimate than that acknowledged by the theory of parallelism. Automatism and Presentationism go together. Self-hood or personality is resolved into the series of ideas or consciousnesses, the 'stream of thought' that runs parallel with the stream of molecular motion. If the life of consciousness is merely the reflection of the physical changes, if the mental events are only the 'other side' of the material events, the former can have no more intimate unity than the latter. Nor is any more intimate unity contemplated by the upholders of this theory. But the essential characteristic of the mental life, as we know it, is that it is a unity in which, in a far more intimate and absolute sense than even in that of the physical organism, the whole is in every part, — the unity of self-consciousness. The self is not to be interpreted as 'idea ideae corporis'; the 'new Spinozism' has the same defect as the old. Nor is the conscious life the mere passive concomitant of the unconscious, or mind the mirror that reflects the movements of matter. The essence of the mental life is, as Aristotle said, activity (ἐνέργεια), not passivity. Consciousness is not a 'stream' that flows parallel with the stream of physical energy and cannot make its own channel. Its relation to the body must also be regarded as a more intimate one than of mere inseparable companionship or parallelism; consciousness is the fulfillment and actualization of all the possibilities of body. Body is the potentiality of mind, mind the perfect actuality of body (σώματος ἐντελέχεια). Mind is the informing principle of body; the one is in no sense external to the other.

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[1] *Nature*, March 26, 1891.

[2] *Nature*, July 23, 1891.

These characteristics, — unity and activity of self-hood, and the intimate causal relation of the Ego to the bodily non-Ego, — are seen to be even more necessary from the ethical standpoint. To resolve the moral self into the series of its conscious states, to explain away psychical and psycho-physical causation, to reduce the mind to the rank of a mere 'spectator' and its life to mere 'Begleitsercheinungen,' to make man a 'conscious automaton,' seems to me to destroy the reality of the moral life. *How* I act upon my body, or my body upon me, I know not; but *that* we do inter-act, that there is a mingling of the waters and not a mere parallelism of the two streams, I must believe.

Must we not admit that, on this question of the relation of mind and body, Agnosticism as yet 'holds the field'? Must we not join in the confession of that 'prince of Agnostics,' David Hume : "The motion of our body follows upon the command of our will. Of this we are every moment conscious. But the means by which this is effected, the energy by which the will performs so extraordinary an operation, — of this we are so far from being immediately conscious, that it must forever escape our most diligent inquiry."[1] Only, we must dissent from the *Ignorabimus*, which, here as elsewhere, the Agnostic deduces from the *Ignoramus*. The *how* of the connection of mind and body is as yet scientifically inconceivable, its *law* has not yet been formulated. It does not follow either that there is no connection, or that that connection "must forever escape our most diligent inquiry."

JAMES SETH.

BROWN UNIVERSITY.

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[1] *Inquiry*, Sec. 7.